

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YOSHIFUMI IWATA and KIYOSHI KUCHIKI

Appeal No. 96-1899
Application 07/936,007¹

ON BRIEF

Before THOMAS, FLEMING, and CARMICHAEL, *Administrative Patent Judges*.

CARMICHAEL, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of Claims 1-4, 8, 9, and 11. Claim 10 is objected to as being dependant on a rejected base claim, but otherwise allowable. The other claims remaining in the application, Claims 5-7 and 12-17, were indicated as allowable in the Examiner's Answer.

We reverse.

¹ Application for patent filed August 27, 1992.

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Appellants' Claim 1 is reproduced as follows:

1. A program-controlled machining apparatus having at least one of a moveable tool and a moveable workpiece, said movement being effected by at least one axis, comprising:

a machining section for computing an axis movement quantity for at least one of said axes on the basis of machining programs;

axis movement direction creation means for determining the direction of the movement of each axis on the basis of said axis movement quantity;

axis movement symbol storage means for storing axis movement symbols comprising directivity information;

axis movement symbol creation means for selecting, from said storage section, axis movement symbols that match the direction of axis movement determined by said axis movement direction creation means; and

display means for displaying at least said selected axis movement symbols.

The Examiner's Answer applies Appellants' Figure 8 as admitted prior art and also applies the following prior art:

Kuperman et al. (Kuperman) 4,591,998 May 27, 1986

OPINION

The grounds of rejection set forth in the final rejection in this application were withdrawn in the Examiner's Answer. Pursuant to new grounds of rejection set forth in the Examiner's Answer, Claims 1, 2, 4, 8, 9, and 11 stand rejected under 35 U.S.C. § 102 as anticipated by admitted prior art and Claim 3 stands rejected under 35 U.S.C. § 103 as unpatentable over admitted prior art in view of Kuperman.

The admitted prior art

Appellants acknowledge that the device illustrated in their Figure 8 is prior art as asserted by the examiner. Response, November 19, 1994 (Paper No. 12) at 4, line 1; Letter, March 1, 1996 (Paper No. 21). Thus, the application's disclosure regarding the conventional device illustrated in Figure 8 is available as prior art. *In re Nomiya*, 509 F.2d 566, 571 n.5, 184 USPQ 607, 611 n.4 (CCPA 1975) (both footnotes are the same, despite the different numbering); *In re Hellsund*, 474 F.2d 1307, 1311, 177 USPQ 170, 173 (CCPA 1973).

Relevant disclosure of the admitted prior art device is found in Figure 8 and dispersed throughout the Specification. The admitted prior art device is identified in the Specification as the "conventional" apparatus.

Figure 8 illustrates the conventional apparatus. Specification at 7. A numerical control section 1 reads out and analyzes machining programs which have been previously stored in storage section 2. Numerical control section 1 determines the movement quantity of each axis and outputs it to the axis drive section 7. Axis drive section 7 controls machine tool 8 to perform a desired machining on the workpiece 16. Axis drive section 7 converts the axis movement quantity into drive signals that can cause machine tool 8 to rotate workpiece 16 and move tool turrets 17 and 18 according to the stored program.

At the same time, numerical control section 1 determines the current position of each axis shown in Figure 8 for tool turrets 17 and 18. This is done on the basis of the previous axis position and axis movement quantity. Display section 4 displays that position data. For each axis name 9, data 10 indicates the current position.

Concerning the movement instruction to each axis, the arrow direction is denoted as + and its opposite as -.

For workpiece 16, rotation is to the right (clockwise) for the "+" instruction and to the left (counter-clockwise) for the "-" instruction. Specification at 1-3.

The disclosed invention

The disclosed invention comprises the conventional apparatus with additional axis movement symbol display functions. Specification at 7, lines 11-15 and at 8, lines 13-23. The additional functions include the following.

A correspondence is determined between the direction of movement instruction to each axis of the machine tool 8 and the direction of the actual movement of each axis of the machine tool 8 as seen by the operator. Instructions (e.g., the "+" instruction) for the various movements of the axes are input and the operator examines the machine's response and identifies a symbol that corresponds to the response actually seen. Specifically, when a movement instruction of the "+" direction is made for each axis, the operator observes the screen of the display section 4 and inputs data, one after the other, concerning which direction each axis of the machine tool 8 actually moves as seen by the operator.

The "+" direction for different axes of the machine tool and the workpiece may correspond to various directions seen by an operator such as "FRONT," "UP," "BACK," "RIGHT," OR "ROTATION TO RIGHT." As seen in Figure 3, a variety of arrows can be selected to correspond to those directions seen by an operator.

When a program has an axis movement instruction (e.g., the "+" instruction), the direction of axis movement as seen by the operator is determined based on the pre-established correspondence. Arrows are displayed that are appropriate to the direction of axis movement as seen by the operator. Specification at 7-10.

The rejections

The examiner's rejections are based on his contention that the minus sign shown for each of the Z2 and C axes in the display in Figure 8 of the admitted prior art indicates a movement direction as recited in the rejected claims.

Appellants argue that the admitted prior art displays the position but not the movement direction. For example, Appellants argue, a minus sign would not be displayed between position "+100" and position "0" in the conventional apparatus even if the moving direction were minus. Reply Brief at 2.

We agree with Appellants.

The Specification uses "+" and "-" in various ways which must be carefully distinguished.

The arrows in Figure 8 indicate the positive ("+") direction of each axis. A "+ instruction" moves a tool or workpiece in the

positive ("+") axis direction and a "- instruction" moves it in the opposite axis direction.

The description of Figure 8 does not explicitly address the "-" symbol appearing in front of "323.000" and "34.000" in display section 4 relied on by the examiner. It does say that the data 10 in display section 4 "shows only the current position of each axis that increases or decreases in accordance with the + or - instruction in the coordinate system of the machine tool." Specification at 3, lines 13-17. One skilled in the art would interpret that as follows.

The only data shown in Figure 8's display section 4 is the current position. The position can be a positive decimal number such as 716.000 or a negative decimal number such as -323.000. A position number along one axis changes between positive and negative when it crosses an intersecting axis. For example, tool turret 18 is shown in Figure 8 as being to the left of where axis Z2 intersects axis X2. The right-pointing arrow on axis Z2 indicates that positive position numbers are to the right. Therefore, one would expect tool turret 18 to have a negative position number along the Z2 axis. Indeed, display section 4 indicates a negative position number (-323.000) for the Z2 axis.

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Thus, we disagree with the examiner's contention that the minus sign shown in the display of Figure 8 indicates a movement direction. Examiner's Answer to Reply Brief at 1. The examiner offers no other basis for the rejections before us. Therefore, we reverse.

REVERSED

JAMES D. THOMAS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
MICHAEL R. FLEMING)	
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